RANGE EXTENSIONS OF VASCULAR PLANTS FROM THE SEWARD PENINSULA, NORTHWEST ALASKA

By Sylvia Kelso[1]

As a barrier, filter, or avenue of migration, the concept of a North American-Asiatic land connection linking Siberia to Alaska through the Bering and Chukchi seas has been the subject of much interest since it was first speculated upon by Wallace in 1876. Enough data have accumulated now from the disciplines of biology, geology, and anthropology, among others, to accept unequivocally that such a connection did exist through not only one but several periods in the past, the most recent ending some 12,000 years ago (c.f. Hopkins, 1979). The vast area under the influence of the land bridge, known as Beringia, stretches from the Kolyma River in Siberia to the MacKenzie Delta in Canada (Yurtsev, 1972). Today, many biotic distribution patterns in this region have their origins in aspects of paleogeography (c.f. Kurten, 1966; Krassilov, 1976; Sher, 1976). As more becomes known about contemporary patterns of biotic distribution, more can be explained about the geography of times past. Concurrently, as more is learned about historical changes, more can be understood about the patterns of today.

The location of Alaska's Seward Peninsula in the heart of the North American half of Beringia (Figure 1) has long stirred the interest of phytogeographers in the floristics of that region. From the early 19th century and the work of the botanist Chamisso who voyaged through the Bering Strait with the explorer Otto von Kotzebue, to the present, numerous collections have been made along the coast of the peninsula (c.f. Flett, 1901; Porsild, 1938; Hultén, 1968; Young, 1971; Racine, 1979) that was easily accessible by sea or more recently, by air. Unfortunately, however, due to its size and general inaccessibility from lack of a road system, the interior of the Seward Peninsula, which may be a critical area for our understanding of the American sector of Beringia, was neglected and remained generally blank except for sporadic collections from a few isolated points. Road systems now extend from Nome to the northwest, north, and east. This has made much of the interior more

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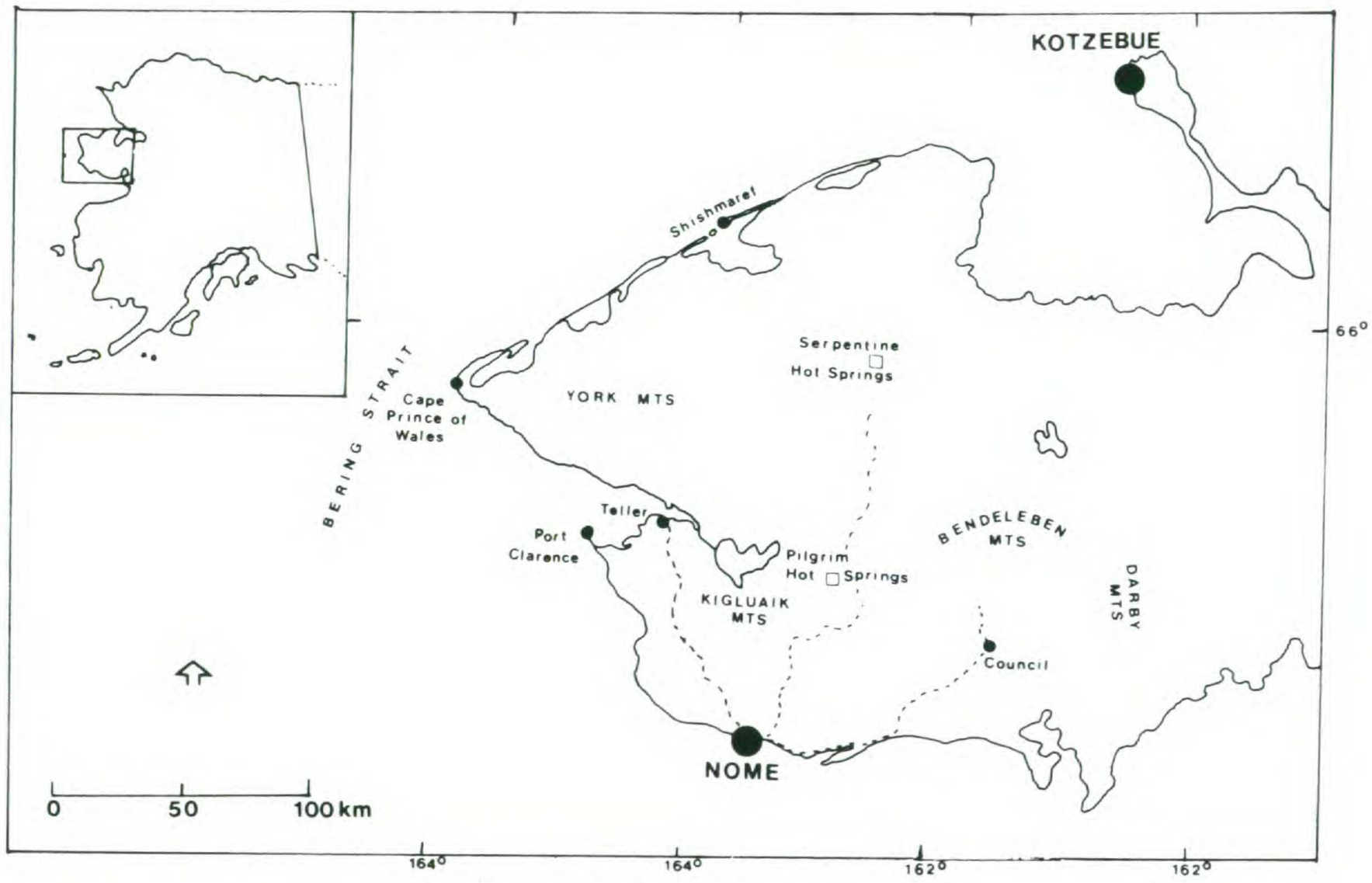

Figure 1. Seward Peninsula, Alaska.

accessible and blank areas can begin to be filled. During the field seasons of 1981 and 1982, the author had the opportunity to make collections in previously unexplored portions of the Seward Peninsula. This paper notes important floristic discoveries for the region.

The Seward Peninsula is generally mountainous and includes the York, Kigluaik, Darby, and Bendeleben Ranges (Figure 1). These offer rugged alpine terrain in contrast to the rolling lowlands and the opportunity for a strong connection to the mountain chains of Northeast Asia and to the Brooks and Alaska Ranges in Alaska. Much of the area was subject only to local alpine glaciation or none at all during the Pleistocene (Sainsbury, 1967). The Kigluaik Mts. have only recently emerged from glaciation and contain a relict glacier in the vicinity of Mt. Osborne (A.B. Till, U.S. Geologic Survey, pers. comm.). In contrast to a periglacial environment, anomolously warm habitats created by geothermal activity can be seen at Serpentine and Pilgrim Hot Springs.

Botanical exploration of the interior of the Seward Peninsula is only just now beginning. As the alpine regions become better known, puzzling floristic gaps may well be filled. The following taxa have recently been discovered on the Seward Peninsula and constitute noteworthy range extensions for the area (c.f. Hultén, 1968). Specimens cited here are deposited at the University of Alaska Museum Herbarium, Fairbanks (ALA).

GRAMINEAE

Alopecurus aequalis Sobol.

BENDELEBEN QUAD.[1]: Mile 60, Kougarok Rd, Central Seward Peninsula. In the margins of an ephemeral pond, 70 msm. *Kelso 82–219* 15 August 1982

This is a circumpolar taxon that was believed to have a notable gap in its distribution between the Chukchi and Seward Peninsulas (Figure 2). Kozhevnikov (1981) and Yurtsev et al. (1979) have now reported it from the interior of the Chukchi Peninsula and this discovery on the Alaska side of the Bering Strait shows the gap does not exist.

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[1]Note: The term "Quad" refers to the U.S. Geologic Survey topographic map at the scale of 1:250,000. These are used in lieu of county divisions which do not exist in Alaska.

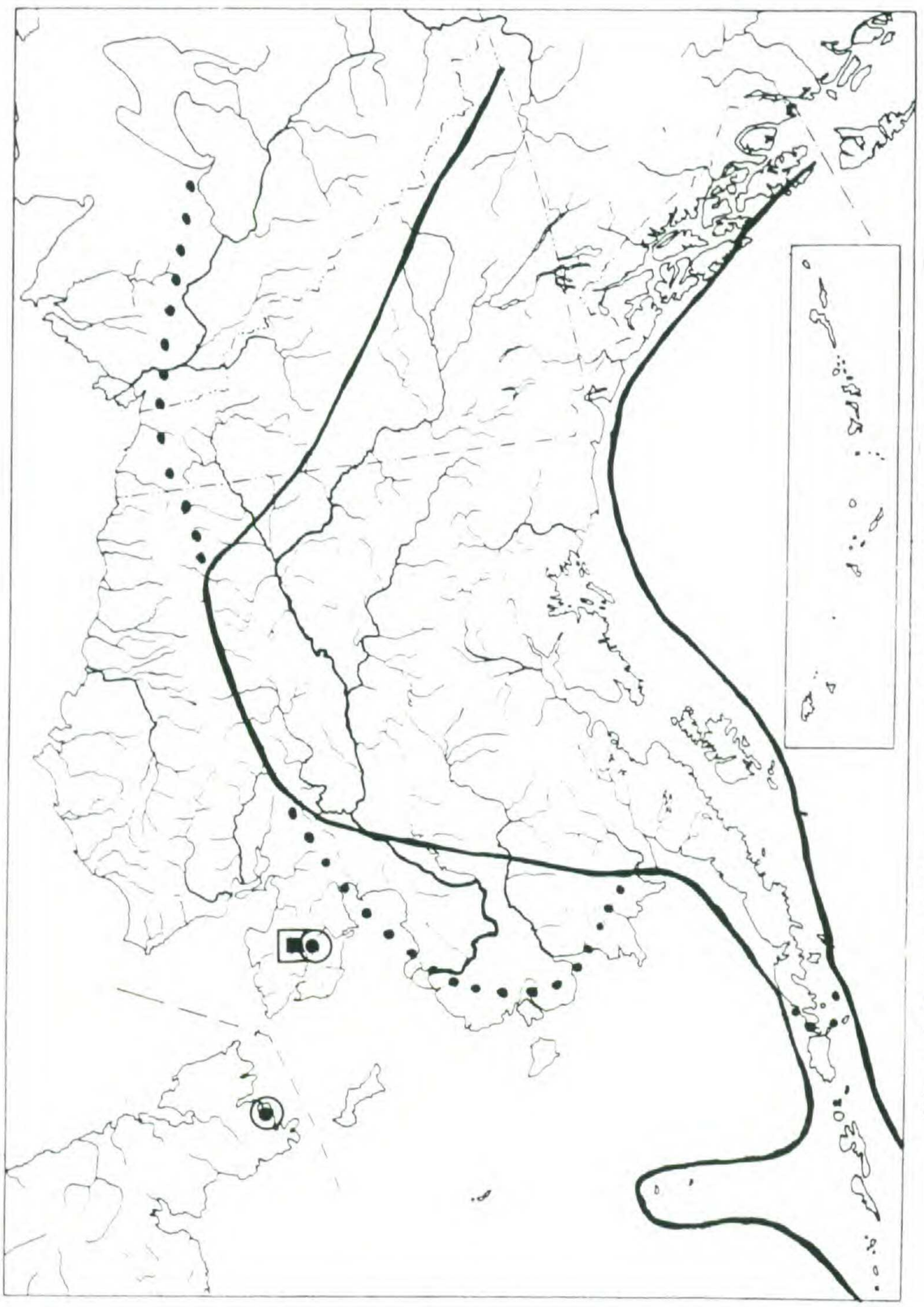

Figure 2. Ranges of *Alopecurus aequalis* (solid line, squares) and *Agrostis scabra* (dotted line, circles)

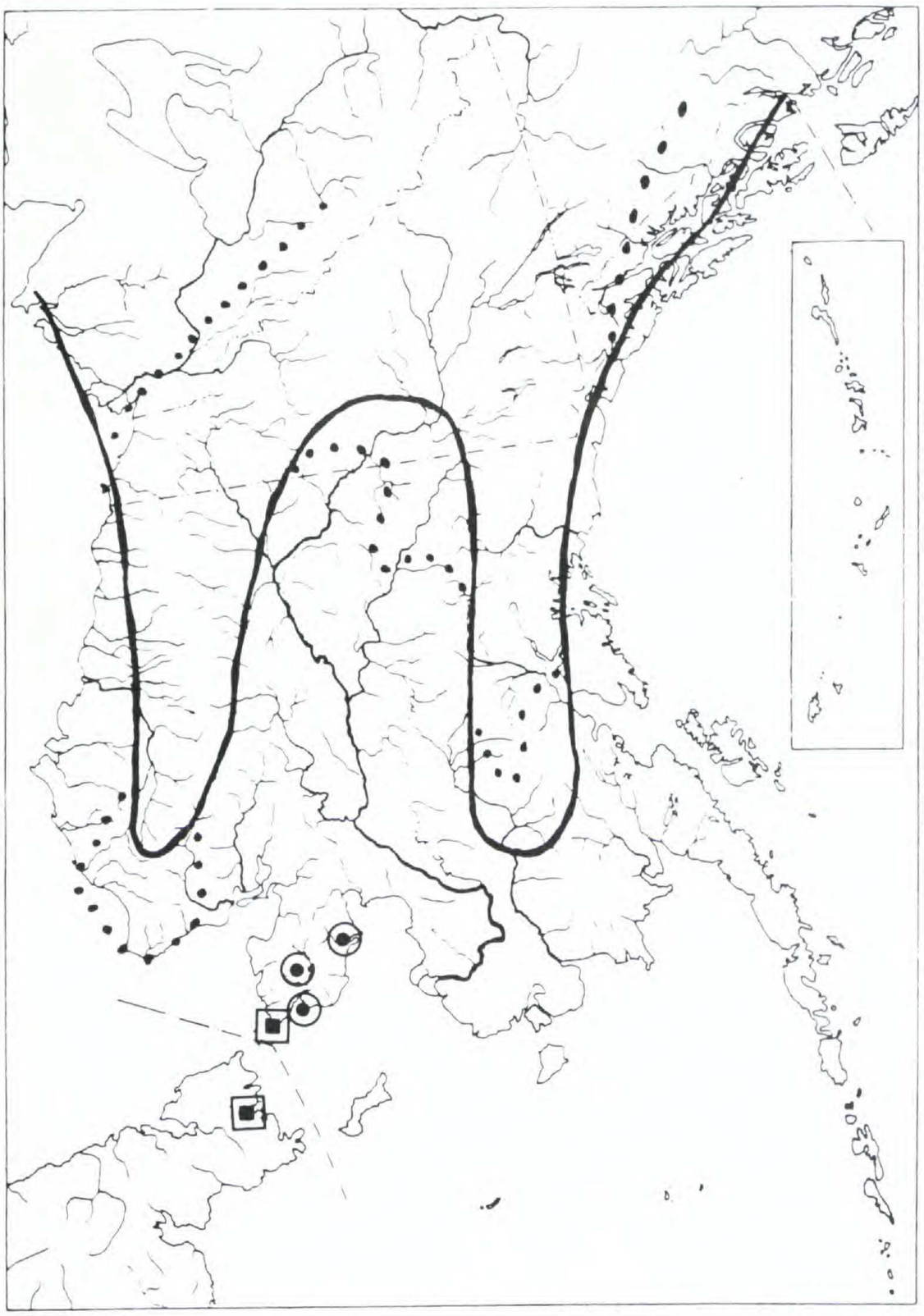

Figure 3. Ranges of *Carex bicolor* (solid line, squares) and *Crepis nana* (dotted line, circles)

Agrostis scabra Willd.

BENDELEBEN QUAD.: Pilgrim Hot Springs, Central Seward Peninsula, 70 msm. *Kelso 82-133* 20 July 1982

This is a boreal taxon common in open or disturbed areas throughout the coniferous forest region of North America east to Newfoundland, with isolated occurrences in Chukotka (Figure 2). This location at Pilgrim Hot Springs (c.f. *C.H. Racine #439* from Serpentine Hot Springs at ALA) extends the range northwestward.

CYPERACEAE

Carex bicolor All.

TELLER QUAD.: Cape Prince of Wales. Shore of Lopp Lagoon, in sandy gravel near the reindeer corral, 0 msm. *Kelso 82-151* 26 July 1982

Carex bicolor is an arctic-alpine taxon found in Alaska at higher elevations in the Brooks and Alaska Ranges with outliers in Chukotka (Figure 3). This discovery at Cape Prince of Wales is the first on the Seward Peninsula and extends the American range considerably to the westward. The sea level habitat exemplifies the strong alpine connections common on the Seward Peninsula where habitat and severe climatic conditions create alpine-type environments at very low elevations.

COMPOSITAE

Crepis nana Richards.

BENDELEBEN QUAD.: Kougarok Rd., Mile 59, in riparian gravel of the Pilgrim River, 70 msm. *Kelso 82-201* 12 August 1982

Crepis nana is an arctic-alpine plant known from Asia and North America. It has a wide range from Labrador to Central Siberia, but the distribution has been mapped as sporadic. On the Seward Peninsula it is known from Port Clarence on the coast and this occurrence in the interior is not surprising (Figure 3).

PRIMULACEAE

Androsace alaskana Cov. and Standl.

BENDELEBEN QUAD.: Kougarok Rd, Mile 51. On limestone outcrop, in sandy crevices, 75 msm. *Kelso 82-223* 17 August 1982

This is a North American taxon of relatively narrow distribution throughout the Alaska Peninsula to the Wrangell–St. Elias Moun-

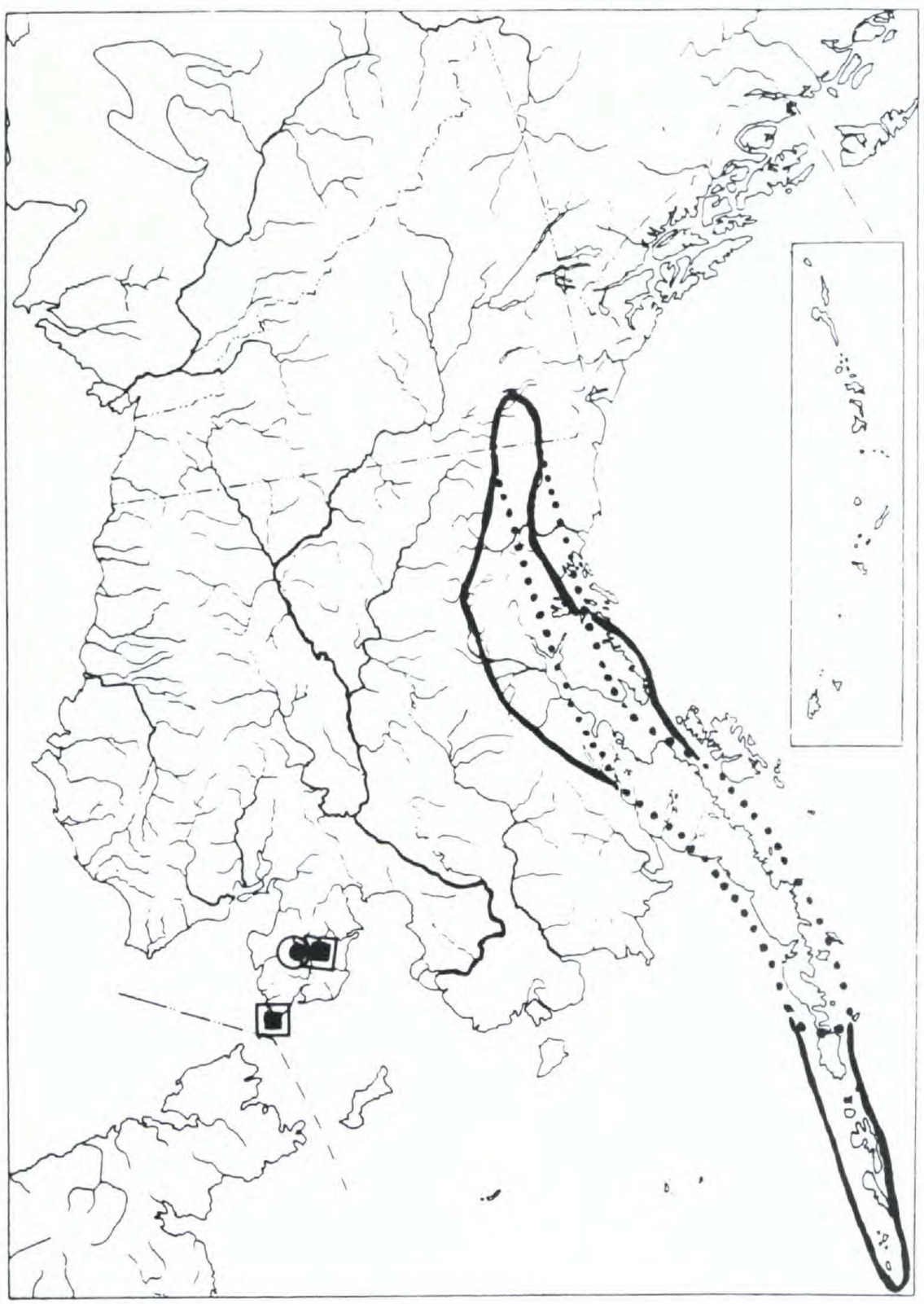

Figure 4. Ranges of *Aphragmus eschscholtzianus* (solid line, squares) and *Androsace alaskana* (dotted line, circles)

tains. Its presence on the Seward Peninsula, widely disjunct from the rest of the range, is quite remarkable (Figure 4).

CRUCIFERAE

Aphragmus eschscholtzianus Andrz.

TELLER QUAD.: Cape Prince of Wales. On wet solifluction soil, steep north-facing limestone slope, 80 msm. *Kelso 81-352* 27 July 1981

Aphragmus eschscholtzianus has a very similar distribution pattern to that of *Androsace alaskana*, reaching from the Aleutians into the Wrangell–St. Elias region. Similarly, this discovery is a disjunct outlier on the Seward Peninsula; the plant has also been found once in the Kigluaik Mts. and is now known from the western tip of the peninsula as well (Figure 4).

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